

REMARKS

Claim 17 has been objected to as being informal and claims 12-19 have been rejected under 35 USC 112 as being indefinite. Claims 12-22 have been replaced with new claims 23-35 and it is believed that the new claims are not open to rejection on the ground of indefiniteness.

Claims 12-22 have been rejected on the ground of obviousness over Jasberg in view of Kapell et al.

The subject matter of this application is an apparatus and method for removing a deposit accumulated in electrolytic refining on the surface of an electrode. As set forth in claim 23, the apparatus comprises a support structure (corresponding to the structure 10 in the case of the embodiment described with reference to the drawings) for supporting the electrode (corresponding to the cathode 1) substantially stationarily in a generally vertical orientation. The support structure includes at least one element (the element 8 or 9) for restraining a lower edge of the electrode against horizontal movement, and at least one element (6 or 7) for restraining an upper edge of the electrode against horizontal movement. At least one stripping element (13) is turnable about a horizontal axis (14) spaced from the electrode and has an end that is spaced from the horizontal axis and moves vertically relative to the electrode during turning of the stripping element and engages the deposit on the surface of the electrode intermediate the lower and upper edges of the electrode. A control element is coupled drivingly to the stripping element for turning the stripping element, whereby cooperation of the stripping element and the elements for restraining the lower and upper edges of the electrode against horizontal movement causes bending of the electrode.

As set forth in claim 32, the method comprises supporting the electrode substantially stationarily in a generally vertical orientation, restraining upper and lower edges of the electrode against horizontal movement, providing at least one stripping element that is turnable about a horizontal axis spaced from the

electrode, and turning the stripping element about the horizontal axis, whereby an end of the stripping element that is spaced from the horizontal axis engages the deposit on the surface of the electrode intermediate the lower and upper edges of the electrode and moves vertically relative to the electrode and causes bending of the electrode.

Thus, in accordance with both claim 23 and claim 32, the electrode is supported in a vertical orientation and is subject to bending by contact with the stripping element moving vertically relative to the electrode.

Jasberg discloses an anode cleaning machine in which an anode to be cleaned of manganese is supported by hooks 32 attached to chains 34. Movement of the chains results in the anode being carried past spray nozzles 36 and rotary brushes 45. The anodes are subject to swinging movement on the hooks and accordingly each brush 45 is provided in conjunction with a back-up element (not referenced) to limit swinging movement of the anode. It is therefore clear, as noted by the examiner, that the anode is not bent by operation on the cleaning machine.

Kapell et al discloses a method of detaching galvanically produced sheets from master sheets. Kapell et al discloses specifically that a composite sheet comprising a master sheet 5 with plated sheets 6, such as copper sheets, adhered thereto by electrolytic deposition may be fed between lower and upper bending rolls for bending the composite sheet to separate the plated sheets from the master 5.

The examiner suggests that the cleaning machine disclosed by Jasberg is fully capable of cleaning a cathode. If the examiner intends to suggest that the machine disclosed by Jasberg is capable of separating a plated copper sheet adhered to a cathode by electrolytic deposition, as in the case of Kapell et al, applicant respectfully disagrees. Applicant submits that a deposit accumulated in electrolytic refining on the surface of a cathode adheres much more strongly to the cathode than manganese adheres to the anode in electrolytic recovery of zinc. Applicant

submits that it is well known to those skilled in the art that mere spraying and brushing would be insufficient to remove, for example, copper deposited on a permanent cathode in a process for electrolytic recovery of copper.

The examiner argues that it would have been obvious to a person of ordinary skill in the art to modify the anode cleaning machine of Jasberg by utilizing bending rolls with the rotatable brush such that the cathode can be bent.

Applicant respectfully disagrees with the examiner's analysis and moreover submits that modification of the anode cleaning machine of Jasberg in the manner suggested by the examiner would not lead to the subject matter of this application.

The examiner's analysis is incorrect, because Jasberg is concerned with an anode cleaning machine, not a cathode cleaning machine. Thus, utilizing bending rolls in the machine of Jasberg would not result in bending of a cathode. Further, the examiner has not shown why a person of ordinary skill in the art would resort to the severe mechanical action taught by Kapell et al when it is evident from Jasberg that relatively mild action is sufficient to remove manganese from the anodes that are the subject of interest in the cleaning machine of Jasberg. Applicant submits that a person of ordinary skill in the art would not find it obvious to employ techniques for removing copper from a cathode master to the problem of removing manganese from an anode.

Modification of the anode cleaning machine of Jasberg in the manner suggested by the examiner would not lead to the subject matter of this application because both claim 23 and claim 32 require that the electrode remained substantially stationary while the stripping element moves vertically relative to the electrode to effect bending of the electrode. Jasberg and Kapell et al teach that the electrode should be cleaned or stripped (as the case may be while the electrode is moved through a cleaning/bending station.

In view of the foregoing, applicant submits that the subject matter of claims 23 and 32 is not disclosed or suggested by Jasberg and Kapell et al, whether taken singly or in combination. Therefore, claims 23 and 32 are patentable and it follows that the dependent claims also are patentable.

Respectfully submitted,



John Smith-Hill
Reg. No. 27,730

SMITH-HILL & BEDELL, P.C.
16100 N.W. Cornell Road, Suite 220
Beaverton, Oregon 97006

Tel. (503) 574-3100
Fax (503) 574-3197

Docket: OUTT 3475